

## Franica-Korkyra Shipping

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**From:** GT1100@DNVPS.com  
**Sent:** 02 December 2013 13:47  
**To:** info@korship.com  
**Subject:** STARTRAMP, FUEL ANALYSIS REPORT, OFF TEMA, 22-NOV-2013, SAMPLE : FUJ1314927

To: KORKYRA SHIPPING LTD  
Attn: Capt Matko Franic

DNV Petroleum Services - Fuel Analysis Report dated: 02-Dec-2013

Vessel: STARTRAMP (9326495)

Sample Number	FUJ1314927
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Product Type	(HFO)
Bunker Port	OFF TEMA
Bunker Date	22-Nov-2013
Sampling Point	SHIP MANIFOLD
Sampling Method	CONTINUOUS DRIP
Sent From	ABIDJAN
Date Sent	26-Nov-2013
Arrived at Lab	30-Nov-2013
Supplier	HAI SOON
Loaded From	HAI SOON VI
Quantity per C.Eng.	190

Seal Data DNVPS, SEAL INTACT, 7381241

Related Samples	
Supplier	7381242
Ship	7381243
SHIP MARPOL	7381244
MARPOL	691270

Receipt Data	Unit
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Source Of Data	B.D.N
Density @ 15°C	kg/m³ 990.6
Viscosity @ 50°C	mm²/s 378.0
Sulfur	% m/m 2.25
Volume @ 15°C	m³ 192.016
Quantity	MT 190.000

Test Parameter	Unit	Result	RMG380
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Density @ 15°C	kg/m³	991.2	991.0
Viscosity @ 50°C	mm²/s	380.9	380.0
Water	% V/V	0.1	0.5
Micro Carbon Residue	% m/m	12	18
Sulfur	% m/m	2.33	3.50
Total Sediment Potential	% m/m	0.01	0.10
Ash	% m/m	0.04	0.15
Vanadium	mg/kg	108	300
Sodium	mg/kg	13	
Aluminium	mg/kg	9	
Silicon	mg/kg	10	
Iron	mg/kg	25	
Nickel	mg/kg	35	

Calcium	mg/kg	4	
Magnesium	mg/kg	LT 1	
Zinc	mg/kg	1	
Phosphorus	mg/kg	LT 1	
Potassium	mg/kg	LT 1	
Pour Point	°C	LT 24	30
Flash Point	°C	GT 70	60

#### Calculated Values

Aluminium + Silicon	mg/kg	19	80
Net Specific Energy	MJ/kg	40.39	
CCAI (Ignition Quality)	-	852	
Quantity (Weight)	MT	190.115	
Quantity Difference	MT	0.115	

Note:

LT means Less Than, GT means Greater Than.

Quantity (Weight) is based on BDN Volume, DNVPS Density and a weight factor of 1.1 kg/m³ (ASTM D1250-80 Table 56).

#### Specification Comparison :

Results compared with amended ISO 8217:2005 specification RMG380, table 2. Based on this sample please note the following:

- Marginally Above : Density @ 15°C, Viscosity @ 50°C

#### Operational Advice :

Approximate fuel temperatures:

#### Injection:

145°C for 10 mm²/s

125°C for 15 mm²/s

115°C for 20 mm²/s

110°C for 25 mm²/s

#### Transfer :

45°C

Based on Density, centrifuge operation is critical or even impossible using a purifier with a water seal.

Recommend to operate separators in parallel as clarifiers. Replace gravity disc with clarifier disc and close water supply. Shorten interval between sludge discharges. Split flow 50/50 between separators and use minimum possible flow rate. Maintain fuel temperature at 98°C at separator inlet. Please refer to manufacturer's instructions for further information.

Best Regards,

On behalf of DNV Petroleum Services Pte Ltd

Kumar M.N.Vishnu

Assistant Technical Advisor

End of Report for STARTRAMP

If not properly aligned, please change font to Courier New, size 10.

Reference to part(s) of this report which may lead to misinterpretation is prohibited.

For technical or operational advice or further information on this report please contact your nearest DNVPS office or contact us directly at  
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